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AUTHOR Coker, Homer
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ABSTRACT

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A COMPETENCY BASED TEACHER CERTIFICATION SYSTEM

INTRODUCTION

The development of a Competency Based Teacher Certification (CBTC) System is a cooperative effort of the Carroll County School System and the School of Education, West Georgia College, both of Carrollton, Georgia, and supported by a grant from the Georgia State Department of Education.

The project is intended to develop and demonstrate a process of identification and assessment of teacher competencies utilizing the teachers of the Carroll County School System through appropriate instrumentation and measurement procedures. Although the Project is specifically a study by and of Carroll County teachers, it is anticipated that procedures, products, and results arising from this study will be for the most part, applicable to all Georgia schools and may well have implications for the nation.

It was initiated in September, 1973, for a planning period of nine (9) months and became operational July, 1974, and refunded July, 1975, for a third year.

This project attempts to look at the problem of recertification for teachers who possess basic credentials and have taught for two or more years. It proposes to develop a plan for identifying and measuring teacher competency areas and related teacher behaviors, and the extent to which these teacher behaviors affect student outcomes as well as the extent to which they relate to the school goals and objectives. In this regard, it is necessary

to go through the same basic steps which are to be followed in the development of any measuring device.

1) A specification of what is to be measured.
2) Development of procedures to be used in measuring it.
3) Tryout and validation of the procedures.
4) A recycling through 2 and 3 above as necessary until a satisfactory validity is achieved.

In the pages to follow, each step in turn will be discussed and presented as they appear today.

I. SPECIFICATION

The task of specifying the Competency Based Certification System (CBCS) differs from the usual assignment because of a limited knowledge of the nature of the variable to be measured, that is, of the nature of effective teacher behavior.

By effective teacher behavior is meant behavior which characterizes teachers who are maximally successful in promoting pupil progress toward the goals of education. By definition, teacher effectiveness must be measured in terms of changes in pupils that are attributable to the teacher's help. It is theoretically possible to measure a teacher's effectiveness by testing his pupils before and after the period in which the teacher has them under his charge, and calculating mean gains on the various tests used; by next measuring the effects of factors not under the teacher's control such as home background, previous opportunities to learn, and the like; and then adjusting pupil gains to make allowance for such influences. In a practical situation, however, it is extremely difficult to obtain a valid

measure of the effectiveness of any one teacher. and such measures have very low reliabilities. From a legal and from an educational standpoint, measures of teacher effectiveness based on pupil learning are highly vulnerable to attack as unfair.

Because such measures are so unreliable, invalid, and legally indefensible as indicators of teaching effectiveness, the CBCS should be based on a teacher's ability to demonstrate mastery of ways of behaving on the job which effective teachers have been shown to use in achieving these effects. If a teacher has command at a specified level of a full range of the knowledges, skills, methods, and other abilities needed to be effective in the classroom, he is certifiable as a competent teacher at that level. This position is similar to that used in other learned professions. Licensing examinations in such professions as law, medicine, and dentistry are generally based on demonstration of knowledge of the approved procedures and practices of the profession and normally require demonstrations of competence to use that knowledge, which is what we propose to require of teachers.

The profession of education is thus moving beyond what has been accepted practice in the profession, and it is doing so because experience has repeatedly shown that even though a teacher possesses vast subject matter knowledge this is no guarantee that he can teach effectively.

Research as a Base for Specification. The main obstacle in the way of specification of the CBCS based on teacher behaviors is the severe lack of empirically demonstrated relationships between teacher behavior and teacher effectiveness. Despite

hundreds of references to the problem in the literature during the 80-odd years since the problem first came under investigation, there are only a few characteristics of teachers of any kind that may be said to have been in any sense of the term proven to relate to teacher effectiveness.

Few of these characteristics provide any useful basis for the construction of a CBCS, either because they are essentially personality traits rather than competencies, or because they are more symptomatic of effectiveness than likely to enhance the effectiveness of a teacher who acquires them.

One of the best established of these is enthusiasm, for example, which could be classified as a personality trait rather than a skill--one which most candidates who lack it could easily counterfeit for the length of an examination, without ever using it in their teaching, either before or after certification.

Another is variability, which means that the activities in a teacher's class vary relatively frequently. Again, this characteristic could easily be demonstrated in a test situation (and perhaps even adopted in the classroom) without improving a teacher's effectiveness. Variability is observed in the skilled teacher's class because he is adapting what he does to the changing needs of pupils, and is only a symptom of something else which is important.

It was deemed necessary to discuss some of the findings of past research in teacher effectiveness to illustrate the point that this research is not going to be very useful in the task of specification--of mapping out the set of teacher behaviors which will constitute the CBCS.

Theory as a Base for Specification. A second place to look for help in the specification task is in the theoretical literature. There is no dearth of advice about what makes an effective teacher from outside the profession itself. Learning psychologists (Skinner, Gagne, Bruner), more therapeutic types (Rogers, Glasser, Raths), philosophers, curriculum developers, disgruntled former classroom teachers, and others even less qualified to speak have advanced theories about how teachers should behave which are often very persuasive. Although none of these theories--or models as they are called today--provides a complete picture of the behavioral skills an effective teacher should (according to the theory) possess, it might be possible to put together a reasonably adequate specification by using an eclectic approach. However, any attempt to do this would involve too many essentially arbitrary choices between conflicting and often equally plausible, prescriptions to be defensible for the role the CBCS is supposed to fill. In other words, the chances that such a pastiche would be found to be valid are too small to justify its adoption.

Teacher Wisdom as a Base for Specification. Teacher wisdom is a third approach to the specification problem which appears to offer more promise. This alternative is to ask the teachers themselves what behaviors are needed to make a teacher effective. Certainly the teachers are closer to the problem and have more opportunity to observe and assess the effects of various ways of behaving in the classroom than anyone else. It is true that they seldom have the opportunity to use sophisticated instrumentation, designs, or methods of statistical analysis that the researcher uses. On the other hand, they can assess both behavior and effects

at close range through long and intimate contact with a much wider range of phenomena and over a longer period of time than would normally be available to any research worker. The teacher cannot apply to his classroom problems the breadth of knowledge or the creative ingenuity of the theoretician, cannot bring to bear the full range of human thought and experience because of time limitations and restrictions; however, he is in immediate contact with all aspects of the problems as they occur, and is less likely to overlook or incorrectly weigh the importance of any single aspect.

The teacher, moreover, has a stake in the problem of identifying those ways of behaving that make him effective that far outweighs that of the academic student of the problem: not only his professional advancement but his very survival depends on how well he solves the problem of specification. The most competent teachers in the schools today may have command of techniques that could elude the inquiries of the researcher and the imagination of the theoretician alike. In this light, it seems likely that teachers may know quite a bit more about the solution than they are always able to articulate or to apply successfully in their own classrooms.

This project was designed to tap this wealth of first-hand knowledge of what makes a good teacher, in drawing up a first set of specifications for the CBCS, in the belief that this would be a useful first approximation that, if not 100% valid, should be more valid than any list which could be derived in any other way. Teachers probably possess many misconceptions about the dynamics of classroom learning, and make many mistakes in their day-to-day

attempts to teach effectively; but they also submit their concepts to daily empirical testing. Equally important, the use of teachers from a typical system as a source of the competency list was expected to increase the likelihood of acceptance by other teachers.

The Competency List. The outcome of the specification should be a list of teacher behaviors--the presence or absence of which in a teacher's repertoire is considered likely to be an index of the teacher's effectiveness and one which covers the full range of such behaviors which are considered relevant.

It should be noted that the set of competencies adopted must be considered an initial a priori estimate suitable only for investigation, in all likelihood requiring extensive revisions. However, the impermanence of the set should neither interfere with nor deter the assessment process.

In order to ensure that the list is comprehensive, it is proposed that the behavior list be organized under headings called competencies. By a competency is meant the ability to cope or deal with a certain class of problems that a teacher encounters on the job. A fully competent teacher is one who can cope successfully with any professional problem; a teacher is said to be competent in a certain area if he can deal with problems in that area. We say that a teacher is competent to teach the second grade, competent to deal with emotionally disturbed children, competent to teach solid geometry, and so on.

II. THE PROCEDURE ADOPTED

The Overall Plan. The first year of the project was devoted

to researching the literature, acquiring documents and information from all known available sources, as well as visitation to sites and persons known to be engaged in similar activities. Selection of consultants appropriate to the CBCS to be developed became an important consideration and required a number of conferences and visits to the project site by prospective consultants. This activity resulted in the employment of three (3) consultants who are experienced in teacher effectiveness research and have developed observation instruments being used in the data gathering phase of the study.

An advisory group was established to monitor the Project. It consisted of classroom teachers and the Superintendent of Schools from Carroll County and members of the faculty and the Dean of the School of Education, West Georgia College. Additionally, the Georgia State Department of Education provides consultative assistance and overview by an Ad Hoc Committee.

There were several rather broad axioms adopted which undergirded the research effort in this project. Among them were that classroom teachers had to be involved in establishing the so-called competencies and attendant behaviors; the competencies ought to become public knowledge and agreeable to those who volunteered to become a part of the assessment process; school administrators would not have access to the assessment results and therefore the results of the study could not influence future employment, etc.; teachers should have opportunity to learn the process and the instruments used in the assessment; teachers should have an opportunity to benefit professionally in some way as a result of their involvement; local teachers should be trained

and utilized in the project whenever possible; long term rather than short term schooling effects would become the basis of student outcome studies; observations in the natural setting would be required for the development of the CBCS envisioned.

A number of steps were taken in order to meet these requirements. Teachers who were to be measured were involved in the identification process; the assessment procedures and instruments were presented to all participants in the study; three (3) local teachers were assigned to the project staff by the school system, were trained and employed as full time observers; a formal letter of agreement and assurance was signed with each participant which outlined conditions of the study and assured the teacher that data gathered on teacher and pupils would be available to him and no one else; future training opportunities would be made available to participants requesting it.

A theory of operationalizing a Competency Based Certification System in the real world was conceptualized in order to give a framework for developing the components required. Current assumptions are that the system will be an alternative to present practices, will be relatively expensive and will require about two (2) years to complete, and will include a number of stages if it is to withstand the inevitable court test.

As now perceived, these stages include a screening procedure, classroom observations in the natural setting, a study of relationships outside the classroom, and the collection of data relating to student outcomes.

The screening procedures would be initiated when a teacher files a request for advanced certification. Instrumentation and procedures for this phase would include examination of available evidence of teaching proficiency. We are currently investigating use of a structured interview technique as a possible first step. The hypothesis is that if a teacher can articulate knowledges, skills, and attitudes thought to be important and related to competencies then it is more likely that this teacher would exhibit the appropriate behaviors. Preliminary studies indicate that the interview instrument does discriminate. An interview guide which appears to correlate with the identified competencies has been constructed and applied; and results will be a part of the analysis of first year data.

The screening process could serve a dual purpose by providing individuals a preliminary assessment as well as recommendations for additional training.

Applicants who appear to possess the required competencies would then be examined the following year through a series of observations in the classroom and a study of other kinds of relationships identified as essential.

The Identification of Competencies. In this project, Carroll County teachers were asked to specify a set of generic teacher competency areas--that is, a set of competencies, the possession of which would enable a teacher to cope with those problems common to all teachers in the county. They were asked to exclude competencies unique to any one grade level, subject matter area, or type of pupil.

The task was begun by organizing three separate task forces, each made up of Carroll County teachers broadly representative of the county schools. Working independently, each group began with a set of competencies already developed elsewhere in the United States, and each attempted to adapt the set to the perceived needs of the county teachers.

The sets of competencies used came from a variety of sources. One group used the "Florida Catalog," which is essentially a compilation of lists of behavioral objectives for pre-service teacher education programs. Most of the lists used were generated by faculties of teacher training institutions designing "model" elementary education programs under Office of Education funding. The compilers have organized the hundreds of behaviors in the catalog under a relatively small number of headings which could serve as a list of areas of competency, with (perhaps) certain additions and deletions.

A second task force engaged in a similar task with respect to a list of behaviors developed at the University of Houston, again as a set of objectives for a pre-service, competency-based teacher education program. A third task force began to work with a set developed in Oregon but found it poorly adapted to its purpose and adopted instead, a set developed at the University of Georgia.

The task forces developed their own rankings of competencies and priorities and then submitted each of them to all the teachers in the county for review. The results indicated that each of the task forces reflected the opinions of the larger group very accurately.

As a final step in this process, a single task force made up of members representing each of the three original task forces (as well as all teachers in the county schools) worked intensively to collate the various sets and produce a composite which was the basis for the first version of the CBCS.

Teacher Behavioral Indicators. As each competency was adopted as part of the definitive set, the task force was also asked to list performance criteria, that is, specific teacher or pupil behaviors each of whose presence, or absence, was a probable indicator of possession of the competency enumerated.

This procedure has a two-fold purpose. First of all, its completion provided some concrete detail about the nature of the competence and added specificity to the definition. Secondly, the indicators provided guidelines for the construction and selection of the measuring instruments which will be the heart of the CBCS.

III. MEASUREMENT PROCEDURES ADOPTED

The principal task for the second year of the Project was that of developing procedures for measuring the competency areas specified in the first year. This involved, first of all, the extension of the lists of behavioral indicators in each area of competency until it was reasonably comprehensive.

It was assumed that the number of specific behavioral indicators that might be listed under an area would, in most cases, be very large. No attempt was made, therefore, to list all of them; however, a concentrated effort was made to compile a representative list. The analogy to conventional test construction

is straightforward: In constructing (say) a history test, no attempt is usually made to list all of the items of knowledge that the test might contain. Instead, the principal areas are identified and then a few items are written to sample each of them.

As behaviors were identified, thought was also given to the way in which a teacher's command of the behavior could best be assessed. Two alternative strategies were considered: One was to construct new observation instruments; the other, to seek out and use existing instrumentation. The latter was the one followed (in the first cycle, at least). Following an exhaustive search of the literature and extensive consultation with major authorities in the area of classroom observation, five instruments were selected. These are Spaulding's CASES and STARS, Medley's OScAR 5V, Soar, Soar and Ragosta's FLACCS, and Brown's TPOR. The Coping Analysis Schedule for Educational Settings (CASES) is designed to measure pupil socialization and consists of 13 categories of "coping" behaviors which are identified by descriptive statements. The Spaulding Teacher Activity Rating Schedule (STARS), a category system, examines the cognitive instructional strategies of teachers which are subsumed under the subtitles of affective behavior, motor and social structuring, concept attainment, concept checking, and value expression. The Observation Schedule and Record, Form 5, Verbal (OScAR 5V) looks at the verbal behavior of teachers. It is based on 14 categories for teacher questions and statements and four categories for pupil-initiated utterances; by looking at sequence it is

possible to recognize 68 kinds of events and some 400 transitions from one event to another. The Florida Classroom Climate and Control System (FLACCS) examines the control tactics of teachers as well as their affective behaviors. It includes items relating to the nature of classroom structure, teacher and student control strategies, and teacher and student affective behaviors, both positive and negative. The Teacher Practices Observation Record (TPOR) measures the congruency of observed teacher behavior in relation to Dewey's philosophy of experimentalism.

Each of these instruments has been used in a variety of other research projects; each instrument is judged to be of the low-inference type; and each measures enough aspects of behavior to be potentially usable in measuring some of the behaviors related to a number of the areas of competency listed.

Measures of pupil behavior are being used both as "process" and "product" measures. Tables 1 and 2 indicate the relationship between competency areas and instruments used, and measures of student outcomes.

In addition to student coping style as measured by CASES (described above), two other major areas of student growth were measured. Cognitive growth was assessed with achievement tests; affective instrumentation included paper and pencil self-concept measures which were obtained from each student in all project classrooms. Fall (pre-test) and Spring (post-test) administrations permit the computation of growth on at least three dimensions--coping style, reading gain, and self-concept. Classroom mean regressed gain scores are being computed through a design which

Table 1

Student/Teacher Measures
Observation Instruments/Interview

Teacher Competency Area	Inter-view	CASES	STARS	STARS	FLACCS	[illegible]OR	OScAR 5V
1) Gathers and uses information relating to individual differences among students.	T						
2) Organizes pupils, resources, and materials for effective instruction.	T	S			S	TS	TS
3) Demonstrates the ability to communicate effectively with students.	T	TS	T	T	TS	T	TS
4) Assists students in using a variety of relevant communication techniques.	T	S	T	T	TS	T	TS
5) Assists students in dealing with their misconceptions or confusions, using relevant clues and techniques.	T	S		T	TS	T	S
6) Responds appropriately to "coping" behavior of students.	T	S		T	TS	T	TS
7) Uses a variety of methods and materials to stimulate and promote pupil learning.	T	S		T	TS	S	T
8) Promotes self-awareness and positive self-concepts in students.	T	S		T	TS	TS	
9) Reacts with sensitivity to the needs and feelings of others.	T			T	TS	TS	TS
10) Engages in personal and professional growth.	T						
11) Works effectively with pupils, parents, colleagues, community, and educational administrators.	T						

T = Teacher measures
S = Student measures

Table 2

Student Outcomes
Attitudinal/Achievement Instruments

Teacher Competency Area	IFMF	HISM	JIM	Achievement
1) Gathers and uses information relating to individual differences among students.				
2) Organizes pupils, resources, and materials for effective instruction.	X	X		X
3) Demonstrates the ability to communicate effectively with students.	X	X	X	
4) Assists students in using a variety of relevant communication techniques.				X
5) Assists students in dealing with their misconceptions or confusions, using relevant clues and techniques.		X		
6) Responds appropriately to "coping" behavior of students.				
7) Uses a variety of methods and materials to stimulate and promote pupil learning.		X	X	
8) Promotes self-awareness and positive self-concepts in students.	X	X		X
9) Reacts with sensitivity to the needs and feelings of others.		X		
10) Engages in personal and professional growth.				
11) Works effectively with pupils, parents, colleagues, community, and educational administrators.				

IFMF = I Feel - Me Feel
HISM = How I See Myself
JIM = Junior Index of Motivation

uses each student's pretest score and his social status (SES) as covariates to eliminate at least part of their effects from pupil gain scores.

IV. TRYOUT AND VALIDATION

Selection and Orientation of Participants. All Carroll County teachers were contacted in the Spring of 1974, presented a slide/tape of the project work and asked to volunteer as observers or observees. Plans were to select three (3) observers and this was done, but when sixty (60) teachers agreed to serve as observees (50 was the goal), all were accepted. Letters of agreement were signed outlining responsibilities of both parties.

Summer workshops were conducted to familarize observees with all phases of study including competencies, observation instruments and student outcome measures.

Testing. The battery of pretests was administered early in the fall of 1974 in the classrooms of 60 Carroll County teachers; and a battery of posttests was administered again in the classrooms of the same 60 teachers--all of whom were still in the Project in May, 1975.

Observations. After the pretests had been administered, each of the approximately 1800 students in the 60 classes was observed using the CASES instrument. This task was completed in three weeks. Each child's record was scored to identify his coping style, and six children with different styles were identified in each classroom. These six students were used in subsequent observations using CASES and STARS. Six such observations were

made in each classroom. At the end of the year, two observations were again recorded on every student in the 60 classrooms.

During the year, each teacher was visited three times, and three five-minute samples of behavior were recorded on each occasion on the TPOR. Each teacher was also visited on six other occasions on each of which the first five minutes of behavior were recorded on FLACCS, the next ten minutes on OScAR and the last five minutes on FLACCS,

Visits were scheduled in advance, but no attempt was made to pre-select the activities to be observed, the intent was to record a representative sample of the behavior present in each classroom.

Data Analysis. The relationships between observed teacher behavior and pupil outcomes will be examined employing complex analysis procedures, including the analysis of covariance and multiple regression. The final determination of statistical treatment will depend, of course, on the exact nature of the sample and the data. The data will be analyzed as follows:

Identified Competency Areas related to Teacher Behaviors

Teacher Behaviors related to Student Outcomes

Teacher Behaviors related to Teaching Level and Student Outcomes

Teacher Behaviors related to Teaching Level (or subject), Student Outcomes and Student Level

Teacher Descriptive Data related to Student Descriptive Data

Teacher Descriptive Data related to Composite Observations

Student Outcomes related to Student Descriptive Data

Teacher Behaviors related to Teacher Descriptive Data

Correlates between teacher behaviors as obtained from observations and student outcomes will be reported. Internal correlates of the teacher sample and student samples will also be reported.

Inter-observer agreement will be determined and reported.

A Teacher Performance Profile will be developed if the findings of data analysis can support such a profile.

SUMMARY

The Carroll County CBTC Project is presently engaged in a replication of a correlational study originally done in 1974-75 of the generic teacher competencies identified by Carroll County teachers during 1973-74. Observations in the natural settings are being used to discover evidence that measurable teacher behaviors related to the various competencies are present. Additionally, relationships between teacher behaviors and pupil outcomes are being studied.

Five observational instruments are employed in the study including Soar, Soar and Ragosta's FLACCS, Spaulding's CASES and STARS, Brown's TPOR and Medley and Mitzel's OScAR. Sixty Carroll County teachers from 15 schools and grades 1 - 12 volunteered to participate in the 1974-75 study. Forty-three teachers from 16 schools are in the replication study, primarily grades 1, 5 and 9, 10.

The current study also includes three training programs for 43 of the 1974-75 observees. Based on a preliminary analysis of the observation data, profiles were constructed and presented to

the first year participants who chose to become involved in one of the following: Spaulding's "Treatment Schedule" (Classroom Management); Joyce and Weil's "Models of Teaching;" Morine's "Concept Attainment."

The project has attempted to develop a prototype of procedures and instruments which school systems throughout Georgia could adopt in terms of identifying measurable teacher competency statements and assessment procedures for their system. The process is the product and the competency statements are, for the most part, byproducts.

The level of funding was somewhat restrictive and required the establishment of priorities so the development of measures/instruments for observation in the natural settings which revealed student/teacher interactions (perhaps the most critical phase of the teaching act) become the initial central thrust. Many other dimensions of the classroom, school climate and setting, administrative and community controlled factors must be studied.

State procedures for certifying teachers have had as their main purpose the protection of public schools from incompetent teachers. Achievement of this purpose has been hampered by a lack of valid procedures for discriminating competent teachers from incompetent ones. In recent years, a number of teacher education programs have appeared which claim to produce only teachers who have demonstrated competency; and an increasing number of state certification agencies, accepting these claims as valid, have moved to require that teachers be certified only on the basis of demonstrated competency.

To design such a certification system will require many years of well-planned studies. Our hope is that we can, in five (5) years or so, determine if this approach deserves such consideration. Our tentative "tentative" conclusion is that it is worthy of investigation, that it offers at least a feasible alternate to present systems of credentialing.

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